No. 200500046

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Progeny Advanced Genetics, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR ORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT D BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

LETTUCE

'Avalanche'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this sixteenth day of May, in the year two thousand and eight.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions*

Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER
PROGENY ADVANCED GENETICS, INC.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
PX334

3. VARIETY NAME
AVALANCHE

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
1536 B MOFFETT ST
SALINAS CA 93905-3342

5. TELEPHONE *(include area code)*
831-751-6030

6. FAX *(include area code)*
831-751-6032

FOR OFFICIAL USE ONLY
PVPO NUMBER
200500046

FILING DATE
DECEMBER 27, 2004

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
CORPORATION

8. IF INCORPORATED, GIVE STATE OF INCORPORATION
CALIFORNIA

9. DATE OF INCORPORATION
12/26/94

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*
DARRYN GIBSON
MANAGER OF RESEARCH AND DEVELOPMENT
PROGENY ADVANCED GENETICS, INC
1536 B MOFFETT ST
SALINAS CALIFORNIA 93905

FEES RECEIVED
FILING AND EXAMINATION FEES:
$ 3,652.00
DATE 12/27/04
CERTIFICATION FEE:
$ 768.00
DATE 4/22/08

11. TELEPHONE *(Include area code)*
831-751-6030

12. FAX *(Include area code)*
831-751-6032

13. E-MAIL
DMAN@IPROGENY.COM

14. CROP KIND *(Common Name)*
LETTUCE

15. GENUS AND SPECIES NAME OF CROP
LACTUCA SATIVA

16. FAMILY NAME *(Botanical)*
COMPOSITAE

17. IS THE VARIETY A FIRST GENERATION HYBRID?
☐ YES ☒ NO

18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)
a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of Variety
d. ☒ Exhibit D. Additional Description of the Variety *(Optional)*
e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
g. ☒ Filing and Examination Fee ($2,705), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *See Section 83(a) of the Plant Variety Protection Act)*
☐ YES *(If "yes", answer items 20 and 21 below)* ☒ NO *(If "no", go to item 22)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? ☐ YES ☒ NO
IF YES, WHICH CLASSES? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☒ NO
IF YES, SPECIFY THE NUMBER 1,2,3, etc. ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

(If additional explanation is necessary, please use the space indicated on the reverse.)

22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☒ YES DEC 31, 2003 ☐ NO U.S.A
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☐ YES ☒ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER		SIGNATURE OF OWNER	
[signature]			
NAME *(Please print or type)* DARRYN GIBSON		NAME *(Please print or type)*	
CAPACITY OR TITLE MANAGER OF RESEARCH AND DEVELOPMENT	DATE 12/22/04	CAPACITY OR TITLE	DATE

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Exhibit A

Details of the Development of the Variety Avalanche

Avalanche is a PIC type romaine lettuce variety developed from a hand pollinated cross of the commercial varieties Tall Guzmaine and Bautista. The initial cross was made in our San Joaquin Valley research and development seed production field in 1993. The F1 seed harvested was designated as # 93047. Tall Guzmaine, a medium sized heavily savoyed Florida type romaine was selected as a source of bolting resistance, corky root resistance and tipburn resistance. Bautista, was selected as it is characteristically slow maturing, has a smoother leaf surface, and good tip burn resistance. The cross was made, and through the pedigree selection breeding method, we developed a smooth textured, slow growing, corky root resistant, PIC type romaine adapted to the winter harvests in Yuma and the spring and summer harvests of the Salinas Valley growing regions.

Approximately 50 plants of the F1 seed were planted in a San Joaquin Valley research seed production field for seed increase in 1994. The F2 seed was harvested in bulk in August 1994, labeled 94047.

An F2 population including 94047 was planted in a research and development field trial in Yuma in late 1994. Individual F2 plants were selected at market maturity for distinctions in type, size, color, days to bolting and resistance to tip burn. The particular selection labeled 94366-53 was noted to have a smooth leaf texture, have an increased heart density, was slower bolting, and did not show any signs of tip burn. The selected plants were removed from the trial, and allowed to fully mature in our green house facility. The F3 seed from the selections were harvested in the early spring of 1995.

The F3 seed from the single plant was then planted in our research and development seed production crop in the San Joaquin Valley in June of 1995. The line, R&D # 95071 was rogued, and all heavier savoyed and early bolting plants were removed from the plot. The remaining plants were all smooth leaved and later maturing, and the F4 seed was harvested in bulk.

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The F4 bulk line was included in research and development trials in the winter of 1995 and spring of 1996 demonstrating the desired smooth leaf and later maturity. Based on these evaluations we increased the seed in our 1996 San Joaquin Valley research and development seed production field. The F4 plants were selectively rogued for type and maturity and all heavier savoyed and earlier maturing plants were removed. At harvest it was noted that the line was segregating for seed color and the F5 seed was harvested in 2 bulks, separated by seed color. The white seeded F5 line was designated PX 334 in October 1996.

PX 334 was evaluated in multiple trials between 1997 and 1999 and noted to be a consistent performer that was a later maturing PIC type with excellent weight, a dense heart, and good tipburn resistance.

It was not until 2000 and 2001 that the emerging salad processing market began to demanded products with smoother, lighter colored PIC leaf types, heavier weights, and better tipburn resistance for their salad plants. Based on these criteria PX 334 was advanced to full bed trials.

Having corky root resistance on one side of the pedigree, markers were run on PX 334 to determine the presence of the *cor* gene, *cor* being a recessive gene responsible for corky root resistance. From the marker analysis conducted in 2001 it was determined that PX 334 was heterozygous for *cor*. Based on these results 25 individual seedlings were again screened for the recessive core gene and 4 seedlings were determined to be homozygous recessive for the *cor* gene. These 4 resistant F5 plants were allowed to reach full maturity and the F6 corky root resistant seed was harvested in bulk in the early winter of 2002.

The F6 seed was then increased in a research and development seed production field in the summer of 2002 and selectively rogued for the smoother leaf type and later maturity. PX 334 was noted to be uniform and stable with no variants. The F7 seed was harvested in the fall, and full bed trials were conducted in the winter and spring of 2002 and 2003 where the uniformity and performance was verified. An additional seed increase was made in the summer of 2003, and the variety was again noted to be uniform and stable with out variants.

As evaluated in seed production and field trials the F6, the F7, and the F8 seed from the variety Avalanche has been uniform and stable with out variants. Seed from the variety

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was first sold on December 31, 2003, at no point prior was any harvested material sold or offered for sale.

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Exhibit B
Statement of Distinctness for the Variety Avalanche

Avalanche is a unique and distinct romaine lettuce variety with a lighter green color and upright and cupping growth habit. This variety is a taller PIC romaine type that forms a dense bleached yellow heart with excellent weight.

The most distinguishing characteristic of this variety is that it possesses resistance to corky root. Though many romaine varieties possess this *cor* gene, it is typically only found in the heavier savoyed Florida types of romaine. Avalanche is unique in that it has the smoother leaf characteristic of a PIC type and resistance to corky root.

Avalanche most closely resembles its paternal parent variety Bautista. Though Bautista is not a true PIC type, it has a smoother leaf texture than a typical Florida type. Avalanche is unique from Bautista and has proven to be significantly different from Bautista for the following traits:

- Avalanche has a shorter core length than Bautista. This data was statistically significant in 3 repeated trials with the following probabilities: 97.2%, 100%, 100%.
- Avalanche has a smaller frame diameter than Bautista. This data was statistically significant in 3 repeated trials with the following probabilities: 99.2%, 96.6%, 99.5%.

Avalanche is also distinct and unique from its paternal parent variety Tall Guzmane.

- Avalanche has a shorter core length than Tall Guzman. This data was statistically significant in 3 repeated trials with the following probabilities: 100%, 100%, 100%.
- Avalanche has a longer heart length than Tall Guzmane. This data was statistically significant in 3 repeated trials with the following probabilities: 96.8%, 100%, 99.4%.
- Avalanche has a longer head length than Tall Guzmane. This data was statistically significant in 3 repeated trials with the following probabilities: 100%, 100%, 94.2%.
- Avalanche has a smaller frame diameter than Tall Guzmane. This data was statistically significant in 3 repeated trials with the following probabilities: 99.6%, 97%, 99.9%.

In addition, Avalanche is a smooth leafed PIC type romaine, where as Bautista has a heavier savoyed leaf , more commonly associated with Florida type romaines.

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Avalanche has a color rating between 5gy5/6 and 5gy6/6 using the Munsell Color Chart for Plant Tissue.

Additional Differences that distinguish Avalanche from Bautista:
These differences have been noted in field trials:

Characteristic	'Avalanche'	vs	'Bautista'
Mature leaf incision depth	Absent		Moderate
Indentation	Entire		Shallowly dentate
Margin undulation	Absent		Moderate
Blistering	Smooth		Moderate

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U. S. Department of Agriculture
Agricultural Marketing Service
Science and Technology Program

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY
LETTUCE *Lactuca sativa*

NAME OF APPLICANT (S)
PROGENY ADVANCED GENETICS, INC.

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)
1536 B MOFFETT STREET
SALINAS CALIFORNIA 93905

FOR OFFICIAL USE ONLY
PVP NUMBER: **200500046**
VARIETY NAME:
EXPERIMENTAL DESIGNATION:

Place numbers in the boxes for the characters which best describe this variety. Measured data should be the mean of an appropriate number (at least 10) of w spaced plants. Royal Horticultural Society or any recognized color standard may be used to determine plant colors.

The location of the test area is: SALINAS VALLEY CA

Color System Used: MUNSELL

1. PLANT TYPE: *(See list of suggested check varieties page 4.)*

[0 4]

01=Cutting/Leaf
02=Butterhead
03=Bibb
04=Cos or Romaine
05=Great Lakes Group
06=Vanguard Group
07=Imperial Group
08=Eastern (Ithaca) Group
09=Stem
10=Latin
11=OTHER-

2. SEED:

COLOR: [1] 1=White (Silver Gray) 2=Black (Gray Brown) 3=Brown (Amber)

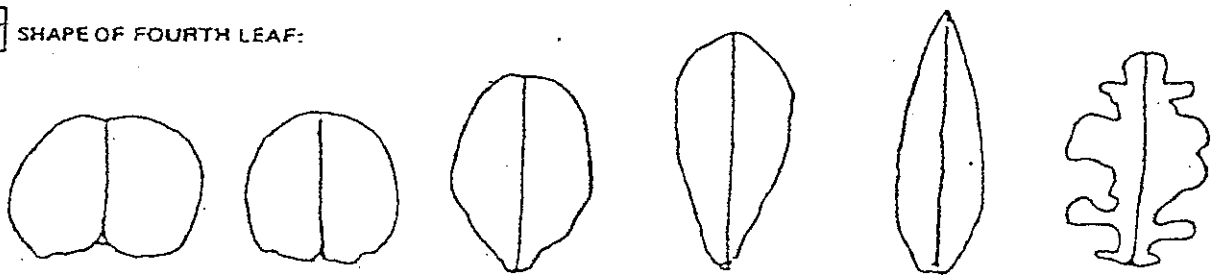
LIGHT DORMANCY: [2] 1=Light Required 2=Light Not Required

HEAT DORMANCY: [1] 1=Susceptible 2=Not Susceptible

3. COTYLEDON TO FOURTH LEAF STAGE: NOTE: Provide a color photograph or photocopy of the fourth leaf from 20 day old seedling grown under optimal conditions.

[3] SHAPE OF COTYLEDONS: 1=Broad 2=Intermediate 3=Spatulate

[4] SHAPE OF FOURTH LEAF:



1 2 3 4 5 6

[2 6] LENGTH/WIDTH INDEX OF FOURTH LEAF: L/W x 10

[1] APICAL MARGIN:
[1] BASAL MARGIN:
1=Entire 2=Crenate/Gnawed 3=Finely Dentate 4=Moderately Dentate 5=Coarsely Dentate 6=Incised 7=Lobed 8=OTHER *(specify)*

[3] UNDULATION: 1=Flat 2=Slight 3=Medium 4=Marked

[1] GREEN COLOR: 1=Yellow Green 2=Light Green 3=Medium Green 4=Dark Green 5=Blue Green 6=Silver Green 7=Gray Green

ANTHOCYANIN:

[1] DISTRIBUTION: 1=Absent 2=Margin Only 3=Spotted 4=Throughout 5=OTHER *(specify)*

[—] CONCENTRATION: 1=Light 2=Moderate 3=Intense

[2] ROLLING: 1=Absent 2=Present

[2] CUPPING: 1=Uncupped 2=Slight 3=Markedly

[1] REFLEXING: 1=None 2=Apical Margin 3=Lateral Margins

20050046

4. MATURE LEAVES *(observe harvest-mature outer leaves)*:

NOTE: Provide color photo of harvest-mature leaves which accurately shows color and margin characteristics.

MARGIN:

[1] INCISION DEPTH: *(deepest penetration of the margin)* 1=Absent/Shallow (Dark Green Boston) 2=Moderate (Vanguard) 3=Deep (Great Lakes 659

[1] INDENTATION: *(finest divisions of the margin)* 1=Entire (Dark Green Boston) 2=Shallowly Dentate (Great Lakes 65) 3=Deeply Dentate (Great Lakes 659) 4=Crenate (Vanguard) 5=OTHER *(specify)*

[1] UNDULATION OF THE APICAL MARGIN: 1=Absent/Slight (Dark Green Boston) 2=Moderate (Vanguard) 3=Strong (Great Lakes 65

[2] GREEN COLOR: 1=Very Light Green (Bibb) 2=Light Green (Minetto) 3=Medium Green (Great Lakes) 4=Dark Green (Vanguard) 5=Very Dark Green 6=OTHER

ANTHOCYANIN *(grown at or below 10 C)*:

[1] DISTRIBUTION: 1=Absent 2=Margin Only (Big Boston) 3=Spotted (Calif. Cream Butter) 4=Throughout (Prize Head) 5=OTHER *(specify)*

[—] CONCENTRATION: 1=Light (Iceberg) 2=Moderate (Prize Head) 3=Intense (Ruby)

[3] SIZE: 1=Small 2=Medium 3=Large

[2] GLOSSINESS: 1=Dull (Vanguard) 2=Moderate (Salinas) 3=Glossy (Great Lakes)

[1] BLISTERING: 1=Absent/Slight (Salinas) 2=Moderate (Vanguard) 3=Strong (Prize Head)

[2] LEAF THICKNESS: 1=Thin 2=Intermediate 3=Thick

[1] TRICHOMES: 1=Absent (smooth) 2=Present (spiny)

5. PLANT *(at market stage. Choose a comparison variety appropriate for this type.)*:

[4 0] SPREAD OF FRAME LEAVES: cm This Variety [4 0] cm BAUTISTA *(specify comparison variety)*

[4 0] HEAD DIAMETER *(market trimmed with single cap leaf)*: cm This Variety [4 0] cm BAUTISTA *(specify comparison variety)*

[4] HEAD SHAPE: 1=Flattened 2=Slightly Flattened 3=Spherical 4=Elongate 5=Non-Heading 6=OTHER

[3] HEAD SIZE CLASS: 1=Small 2=Medium 3=Large

[2 4] HEAD COUNT PER CARTON

[7 8 7] HEAD WEIGHT: g This Variety [7 7 4] g BAUTISTA *(specify comparison variety)*

[2] HEAD FIRMNESS: 1=Loose 2=Moderate 3=Firm 4=Very Firm

6. BUTT *(bottom of market-trimmed head)*:

[3] SHAPE: 1=Slightly Concave 2=Flat 3=Rounded

[1] MIDRIB: 1=Flattened (Salinas) 2=Moderately Raised 3=Prominently Raised (Great Lakes 659)

7. CORE *(stem of market-trimmed head)*:

[3 3] mm Diameter at base of head

[1 2 1] Ratio of head diameter/core diameter

[3 6] Core height from base of head to apex: mm This Variety [3 1] mm BAUTISTA *(specify comparison variety)*

8. BOLTING *(Give First Water Date MAY 6)*: NOTE: First Water Date is the date seed first receives adequate moisture to germinate. This can and often does equal the planting date.

[6 3] Number of days from First Water Date to seed stalk emergence *(summer conditions)*: This Variety [6 7] BAUTISTA *(specify comparison variety)*

[3] BOLTING CLASS: 1=Very Slow 2=Slow 3=Medium 4=Rapid 5=Very Rapid

8

[1 0 6] Height of mature seed stalk: cm This Variety [9 5] BAUTISTA

Spread of Bolter Plant (at widest point):
38 cm This Variety 44 cm BAUTISTA (specify comparison variety)

2 BOLTER LEAVES: 1=Straight 2=Curved

2 MARGIN: 1=Entire 2=Dentate

2 COLOR: 1=Light Green 2=Medium Green 3=Dark Green

BOLTER HABIT:

1 TERMINAL INFLORESCENCE: 1=Absent 2=Present

1 LATERAL SHOOTS: (above head) 1=Absent 2=Present

1 BASAL SIDE SHOOTS: 1=Absent 2=Present

9. MATURITY (earliness of harvest-mature head formation):

NOTE: Complete this section for at least one season.

SEASON	Applic. 1/ #of days	Check 1/ #of days	CHECK VARIETY 2/
Spring	71	73	BAUTISTA
Summer	66	67	BAUTISTA
Fall	81	83	BAUTISTA
Winter			

Give planting date(s) and location(s):

Spring FEB 1 – MARCH 15 SALINAS VALLEY CA

Summer MARCH 15 – JUNE 21 SALINAS VALLEY CA

Fall JUNE 21 – SEPT 1 SALINAS VALLEY CA

Winter OCT 1 – NOV 15 YUMA AZ

1/ First water date to harvest. 2/ Fill in check variety name on the appropriate line.

10. ADAPTATION:

PRIMARY REGIONS OF ADAPTION (tested and proven adapted): (0=Not tested 1=Not Adapted 2=Adapted)

2 Southwest (Calif., Ariz. desert) 2 West Coast 0 Northeast

0 Northcentral 0 Southeast ☐ OTHER

SEASON:

2 Spring (area SALINAS VALLEY CA) 2 Fall (area SALINAS VALLEY CA)

2 Summer (area SALINAS VALLEY CA) 2 Winter (area YUMA AZ)

0 GREENHOUSE: 0=Not tested 1=Not Adapted 2=Adapted

3 SOIL TYPE: 1=Mineral 2=Organic 3=Both

11. DISEASES AND STRESS REACTIONS (0=Not tested; 1=Susceptible; 2=Intermediate; 3=Resistant; 4=Highly resistant; 5=Tolerant):

VIRUS

- [1] Big Vein
- [1] Lettuce Mosaic
- [0] Cucumber Mosaic
- [0] Broad Bean Wilt
- [0] Turnip Mosaic
- [0] Beet Western Yellows
- [0] Lett. Infectious Yellows
- [ ] Other Virus _____

FUNGAL/BACTERIAL

- [3] Corky Root Rot (Pythium Root Rot)
- [1] Downy Mildew (Races _____)
- [1] Powdery Mildew
- [1] Sclerotinia Rot
- [0] Bacterial Soft Rot (Pseudomonas spp. & others)
- [0] Botrytis (Gray Mold)
- [ ] OTHER _____

INSECTS

- [0] Cabbage Loopers
- [0] Root Aphids
- [0] Green Peach Aphid
- [ ] Other Insect _____

PHYSIOLOGICAL/STRESS

- [2] Tipburn
- [2] Heat
- [0] Drought
- [3] Cold
- [0] Salt
- [0] Brown Rib (Rib Discoloration, Rib Blight)
- [ ] OTHER _____

POST HARVEST

- [5] Pink Rib
- [0] Russet Spotting
- [0] Rusty Brown Discoloration
- [0] Internal Rib Necrosis (Blackheart, Gray Rib, Gray Streak)
- [0] Brown Stain

12. BIOCHEMICAL OR ELECTROPHORETIC MARKERS:

13. COMMENTS:

SUGGESTED CHECK VARIETIES

TYPE	CHECK VARIETY
1) CUTTING/LEAF	SALAD BOWL
2) BUTTERHEAD	DARK GREEN BOSTON
3) 8188	8188
4) COS, OR ROMAINE	PARRIS ISLAND
5) GREAT LAKES GROUP	GREAT LAKES 659-700
6) VANGUARD GROUP	VANGUARD
7) IMPERIAL GROUP	VIVA
8) EASTERN GROUP	ITHACA
9) STEM	CELTUCE

Avalanche

Avalanche

Avalanche

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Exhibit D

Avalanche is a distinct and novel variety of romaine lettuce. The variety is a smoothed leafed PIC type romaine with resistance to corky root. Avalanche is unique from Bautista in that it has a smoother leaf texture and has resistance to corky root.

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Trial map #:	RSV04034	**Location:**	Salinas	**Ranch/lot:**	Turry 5	**Date evald:** 6/5/2004
Wet Date:	3/25/2004	**Grower:**	Costa	**Commercial Var:**		**Eval by:** Darkland

	Date Mature	Days to Maturity	Color
Avalanche	6/4/2004	71	5gy 6/6
Bautista	6/6/2004	73	5gy 5/6

	Core Diameter (mm)		Core Length (mm)		Heart Length (mm)		Head length (mm)		Head length:Core Length		Frame diam (cm)		Head wt. (g)	
Sample #	Avalanche	Bautista	Avalanche	Bautista	Avalanche	Bautista	Avalanche	Bautista	Avalanche	Bautista	Avalanche	Bautista	Avalanche	Bautista
1	34	30	30	25	210	210	235	220	7.8	8.8	38	42	888	756
2	34	33	33	28	185	220	220	236	6.7	8.4	38	42	745	723
3	37	33	35	29	225	215	240	234	6.9	8.1	42	40	698	743
4	30	35	37	25	250	218	260	240	7.0	9.6	40	40	890	804
5	34	35	30	29	195	245	235	253	7.8	8.7	40	43	876	834
6	32	36	35	29	230	239	240	241	6.9	8.3	45	44	823	812
7	35	30	30	30	245	240	250	245	8.3	8.2	38	45	812	804
8	30	30	30	33	235	236	245	245	8.2	7.4	42	46	734	734
9	30	34	31	30	230	230	245	240	7.9	8.0	40	45	790	712
10	33	30	36	35	220	225	240	240	6.7	6.9	44	48	656	798
11	30	35	39	33	210	200	235	220	6.0	6.7	44	48	670	800
12	30	35	30	33	190	210	225	225	7.5	6.8	40	45	824	654
Average	32.4	33.0	33.0	29.9	218.8	224.0	239.2	236.6	7.3	8.0	40.9	44.0	783.8	764.5
Stan dev	2.43E+00	2.37E+00	3.28E+00	3.15E+00	2.11E+01	1.42E+01	1.06E+01	1.03E+01	7.19E-01	8.97E-01	2.47E+00	2.70E+00	8.27E+01	5.29E+01
T test	5.58E-01		2.81E-02		4.82E-01		5.51E-01		5.16E-02		7.88E-03		5.02E-01	
% Probability	44.2		97.2		51.8		44.9		94.8		99.2		49.8	

Trial map #:	RSV04068	**Location:**	Salinas	**Ranch/lot:**	Alexander-7	**Date evald:**	9/5/2004
Wet Date:	7/3/2004	**Grower:**	Higashi	**Commercial Var:**	Green Forrest	**Eval by:**	DG

	Date Mature	Days to Maturity	Color
Avalanche	9/7/2004	66	5gy5/8
Bautista	9/8/2004	67	

	Core Diameter (mm)		Core Length (mm)		Heart Length (mm)		Head length (mm)		Head length:Core Length		Frame diam (cm)		Head wt. (g)	
Sample #	Avalanche	Bautista	Avalanche	Bautista	Avalanche	Bautista	Avalanche	Bautista	Avalanche	Bautista	Avalanche	Bautista	Avalanche	Bautista
1	34	32	38	32	225	235	238	242	6.3	7.6	45	42	768	735
2	36	34	40	32	220	230	240	242	6.0	7.6	45	45	920	715
3	39	35	40	34	235	230	242	235	6.1	6.9	48	45	832	734
4	34	35	43	35	230	225	248	230	5.8	6.6	45	42	643	784
5	32	32	40	32	210	210	235	215	5.9	6.7	43	45	723	843
6	32	33	38	30	240	225	258	235	6.8	7.8	46	47	854	823
7	34	35	37	30	230	230	245	248	6.6	8.3	40	45	834	712
8	32	36	35	33	240	238	260	235	7.4	7.1	40	43	850	869
9	36	35	40	35	236	229	255	240	6.4	6.9	38	45	743	842
10	34	35	44	33	240	215	262	220	6.0	6.7	40	48	733	802
11	36	33	40	35	235	210	248	215	6.2	6.1	40	45	812	798
12	33	34	38	35	245	221	254	220	6.7	6.3	38	46	830	832
Average	34.3	34.1	39.4	33.0	232.2	224.8	248.8	231.4	6.3	7.0	42.3	44.8	795.2	790.8
Stan dev	2.10E+00	1.31E+00	2.47E+00	1.86E+00	9.91E+00	9.17E+00	9.03E+00	1.13E+01	4.77E-01	6.45E-01	3.39E+00	1.80E+00	7.51E+01	5.45E+01
T test	7.30E-01		3.26E-07		7.32E-02		4.24E-04		5.79E-03		3.45E-02		8.71E-01	
% Probability	27.0		100.0		92.7		100.0		99.4		96.6		12.9	

Trial map #:	RSV04077	**Location:**	Chualar	**Ranch/lot:**	14/9	**Date evald:**	11/15/2004
Wet Date:	8/27/2004	**Grower:**	D'Arrigo	**Commercial Va**	Green Forrest	**Eval by:**	dg

	Date Mature	ays to Maturity	Color
Avalanche	11/16/2004	81	5gy 5/6
Bautista	11/18/2004	83	5gy5/6

	Core Diameter (mm)		Core Length (mm)		Heart Length (mm)		Head length (mm)		Head length:Core Length		Frame diam (cm)		Head wt. (g)	
Sample #	Avalanche	Bautista	Avalanche	Bautista	Avalanche	Bautista	Avalanche	Bautista	Avalanche	Bautista	Avalanche	Bautista	Avalanche	Bautista
1	33	33	34	30	230	225	245	230	7.2	7.7	30	35	796	805
2	33	30	34	30	225	220	240	235	7.1	7.8	35	35	800	732
3	35	30	37	34	220	210	240	218	6.5	6.4	35	38	845	698
4	36	34	36	30	215	235	233	242	6.5	8.1	34	40	702	834
5	33	32	35	25	230	220	242	235	6.9	9.4	39	40	746	843
6	30	32	35	28	210	210	232	225	6.6	8.0	35	40	802	812
7	30	35	35	20	195	215	228	250	6.5	12.5	40	42	679	732
8	33	35	33	30	200	200	220	243	6.7	8.1	33	38	823	684
9	32	30	36	30	215	195	230	234	6.4	7.8	35	40	866	715
10	35	30	33	32	220	200	235	225	7.1	7.0	35	40	901	807
11	37	34	35	35	215	210	228	230	6.5	6.6	39	42	754	847
12	33	30	33	30	220	200	230	234	7.0	7.8	40	43	743	723
Average	33.3	32.1	34.7	29.5	216.3	211.7	233.6	233.4	6.7	8.1	35.8	39.4	788.1	769.3
Stan dev	2.15E+00	2.07E+00	1.30E+00	3.94E+00	1.07E+01	1.19E+01	7.14E+00	8.78E+00	2.90E-01	1.59E+00	3.07E+00	2.54E+00	6.60E+01	6.06E+01
T test	1.60E-01		2.83E-04		3.32E-01		9.60E-01		8.19E-03		5.04E-03		4.76E-01	
% Probability	84.0		100.0		66.8		4.0		99.2		99.5		52.4	

Trial map #:	RSV04034	**Location:**	Salinas	**Ranch/lot:**	Turry 5	**Date evald:**	6/5/2004
Wet Date:	3/25/2004	**Grower:**	Costa	**Commercial Var:**		**Eval by:**	Darkland

	Date Mature	**Days to Maturity**	**Color**
Avalanche	6/4/2004	71	5gy 6/6
Tall Guzmain	6/8/2004	75	5gy 5/6

	Core Diameter (mm)		Core Length (mm)		Heart Length (mm)		Head length (mm)		Head length:Core Length		Frame diam (cm)		Head wt. (g)	
Sample #	Avalanche	Tall Guzmain	Avalanche	Tall Guzmain	Avalanche	Tall Guzmain	Avalanche	Tall Guzmai	Avalanche	Tall Guzmain	Avalanche	Tall Guzmain	Avalanche	Tall Guzmain
1	34	36	30	24	210	200	235	222	7.8	9.3	38	42	888	876
2	34	36	33	20	185	195	220	215	6.7	10.8	38	42	745	890
3	37	35	35	22	225	190	240	200	6.9	9.1	42	49	698	798
4	30	34	37	25	250	190	260	205	7.0	8.2	40	43	890	865
5	34	34	30	24	195	195	235	215	7.8	9.0	40	43	876	743
6	32	36	35	30	230	210	240	210	6.9	7.0	45	43	823	868
7	35	30	30	28	245	212	250	220	8.3	7.9	38	48	812	902
8	30	36	30	30	235	220	245	225	8.2	7.5	42	45	734	821
9	30	38	31	24	230	195	245	230	7.9	9.6	40	45	790	743
10	33	38	36	24	220	200	240	220	6.7	9.2	44	40	656	702
11	30	35	39	20	210	210	235	210	6.0	10.5	44	45	670	700
12	30	34	30	25	190	220	225	230	7.5	9.2	40	45	824	732
Average	32.4	35.2	33.0	24.7	218.8	203.1	239.2	216.8	7.3	8.9	40.9	44.2	783.8	803.3
Stan dev	2.43E+00	2.12E+00	3.28E+00	3.31E+00	2.11E+01	1.09E+01	1.06E+01	9.46E+00	7.19E-01	1.12E+00	2.47E+00	2.55E+00	8.27E+01	7.64E+01
T test	7.38E-03		3.08E-06		3.24E-02		1.83E-05		3.77E-04		4.41E-03		5.55E-01	
% Probability	99.3		100.0		96.8		100.0		100.0		99.6		44.5	

Trial map #:	RSV04068	**Location:**	Salinas	**Ranch/lot:**	Alexander-7	**Date evald:**	9/5/2004
Wet Date:	7/3/2004	**Grower:**	Higashi	**Commercial Va**	Green Forrest	**Eval by:**	DG

	Date Mature	Days to Maturity	Color
Avalanche	9/7/2004	66	5gy5/8
Tall Guzmain	9/9/2004	68	5gy5/6

	Core Diameter (mm)		Core Length (mm)		Heart Length (mm)		Head length (mm)		Head length:Core Length		Frame diam (cm)		Head wt. (g)	
Sample #	Avalanche	Tall Guzmain	Avalanche	Tall Guzmain	Avalanche	Tall Guzmain	Avalanche	Tall Guzmai	Avalanche	Tall Guzmain	Avalanche	Tall Guzmain	Avalanche	Tall Guzmain
1	34	36	38	34	225	200	238	225	6.3	6.6	45	40	768	777
2	36	36	40	32	220	190	240	220	6.0	6.9	45	42	920	895
3	39	36	40	30	235	215	242	225	6.1	7.5	48	45	832	743
4	34	35	43	24	230	220	248	233	5.8	9.7	45	45	643	786
5	32	34	40	25	210	200	235	215	5.9	8.6	43	47	723	678
6	32	33	38	28	240	200	258	218	6.8	7.8	46	48	854	732
7	34	33	37	30	230	195	245	210	6.6	7.0	40	48	834	834
8	32	35	35	25	240	200	260	240	7.4	9.6	40	45	850	879
9	36	34	40	29	236	215	255	235	6.4	8.1	38	48	743	723
10	34	39	44	30	240	200	262	220	6.0	7.3	40	46	733	751
11	36	33	40	33	235	235	248	249	6.2	7.5	40	43	812	804
12	33	35	38	32	245	225	254	236	6.7	7.4	38	45	830	897
Average	34.3	34.9	39.4	29.3	232.2	207.9	248.8	227.2	6.3	7.8	42.3	45.2	795.2	791.6
Stan dev	2.10E+00	1.73E+00	2.47E+00	3.28E+00	9.91E+00	1.37E+01	9.03E+00	1.15E+01	4.77E-01	1.00E+00	3.39E+00	2.52E+00	7.51E+01	7.19E+01
T test	4.66E-01		2.11E-08		5.78E-05		3.99E-05		1.12E-04		2.98E-02		9.06E-01	
% Probability	53.4		100.0		100.0		100.0		100.0		97.0		9.4	

Trial map #:	RSV04077	**Location:**	Chualar	**Ranch/lot:**	14/9	**Date evald**	11/15/2004
Wet Date:	8/27/2004	**Grower:**	D'Arrigo	**Commercial Va**	Green Forrest	**Eval by:**	dg

	Date Mature	ays to Maturity	Color
Avalanche	11/16/2004	81	5gy 5/6
Tall Guzmain	11/19/2004	84	5gy5/6

	Core Diameter (mm)		Core Length (mm)		Heart Length (mm)		Head length (mm)		Head length:Core Length		Frame diam (cm)		Head wt. (g)	
Sample #	Avalanche	Tall Guzmain	Avalanche	Tall Guzmain	Avalanche	Tall Guzma	Avalanche	Tall Guzmai	Avalanche	Tall Guzmain	Avalanche	Tall Guzmain	Avalanche	Tall Guzmain
1	33	34	34	28	230	210	245	22	7.2	0.8	30	40	796	854
2	33	35	34	28	225	210	240	225	7.1	8.0	35	38	800	623
3	35	35	37	30	220	215	240	225	6.5	7.5	35	38	845	678
4	36	34	36	26	215	200	233	220	6.5	8.5	34	40	702	789
5	33	36	35	27	230	210	242	215	6.9	8.0	39	41	746	698
6	30	34	35	25	210	195	232	225	6.6	9.0	35	39	802	765
7	30	33	35	25	195	200	228	210	6.5	8.4	40	38	679	823
8	33	34	33	28	200	205	220	215	6.7	7.7	33	40	823	798
9	32	35	36	26	215	215	230	225	6.4	8.7	35	42	866	643
10	35	33	33	25	220	200	235	205	7.1	8.2	35	40	901	657
11	37	33	35	29	215	195	228	205	6.5	7.1	39	38	754	795
12	33	33	33	30	220	205	230	215	7.0	7.2	40	40	743	745
Average	33.3	34.1	34.7	27.3	216.3	205.0	233.6	200.6	6.7	7.4	35.8	39.5	788.1	739.0
Stan dev	2.15E+00	9.96E-01	1.30E+00	1.86E+00	1.07E+01	7.07E+00	7.14E+00	5.67E+01	2.90E-01	2.17E+00	3.07E+00	1.31E+00	6.60E+01	7.68E+01
T test	2.84E-01		1.26E-10		5.99E-03		5.81E-02		3.04E-01		9.73E-04		1.07E-01	
% Probability	71.6		100.0		99.4		94.2		69.6		99.9		89.3	

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Trialing Protocol for Intellectual Property Protection.

I. Set Up

1. Parental lines and competing varieties are identified.
2. Primary slots are identified.
3. Necessary accession lines are located and purchased/received from seed dealers or growers.
4. All varieties are assigned a number to maintain integrity, and anonymity.
5. Trials are set up in the Progeny warehouse with all necessary varieties. Variety arrangement for trial is diagramed.

II. Planting

1. Commercial plantings are located by contacting commercial growers during the planting slot recommended for the variety.
2. Field is located during commercial planting, and the necessary rows and area is marked off by a Progeny employee with proper training.
3. Varieties are planted according to diagram, in 100 ft. ranges.
4. All varieties are planted in same manner, to mimic the planting of the commercial variety as closely as possible.
5. A trial map is drawn diagramming the trial, the trial location in the field, and directions to the field.

III. Maintenance

1. All varieties are treated identically. The grower handles all watering, fertilization, and pest control, as if it was no different from the commercial field it is grown with.
2. Thinning of the trial is done by a crew contracted by the commercial grower.

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IV. Evaluation

1. Evaluations are done as near to the time of the commercial harvest as possible by knowledgeable Progeny employees.
2. The evaluation is conducted "blindly". The evaluator(s) do not have the key to the trial at the time of evaluation.

3. 24 heads of each variety are evaluated.
    a. The frame diameter of 24 random plants are measured to the nearest cm.
    b. 24 mature heads of each variety are cut to the cap leaf.
    c. The heads are carried to an adequate work station
    d. The following measurements are then conducted and recorded:
        1. Each head is weighed to the nearest gram.
        2. The core diameter of each head is measured to the nearest mm.
        3. The heads are then sliced in to halves, discarding 1 half.
        4. The core lengths (from the cut stem to the core tip) are measured to the nearest mm.
        5. The head length (from the cut stem to the cap leaf) is measured to the nearest mm.
        6. The head diameter (at its widest point) is measured to the nearest mm.
        7. The ideal maturity or harvest date is then estimated based on the solidity of the head, the core length and any other physiological characteristics present.
        8. The leaf color is documented using the Munsell Color Charts for Plant Tissue.
    e. From these measurements, we then use an Excell program to calculate the averages, the standard deviations and the T-Tests for the compared varieties.

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EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)

PROGENY ADVANCED GENETICS, INC.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER

PX334

3. VARIETY NAME

AVALANCHE

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*

1536 B MOFFETT ST
SALINAS CA 93905

5. TELEPHONE *(include area code)*

831-751-6030

6. FAX *(include area code)*

831-751-6032

7. PVPO NUMBER

200500046

8. Does the applicant own all rights to the variety? *Mark an "X" in appropriate block.* If no, please explain. [XX] YES [ ] NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company? [XX] YES [ ] NO
If no, give name of country

10. Is the applicant the original owner? [XX] YES [ ] NO *If no, please answer one of the following:*

a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)?

[ ] YES [ ] NO If no, give name of country

b. If original rights to variety were owned by a company(ies), is(are) the original owner(s) a U.S. based company?

[ ] YES [ ] NO If no, give name of country

11. Additional explanation on ownership *(if needed, use reverse for extra space)*:

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.